UTC LM556   LINEAR INTEGRATED CIRCUIT
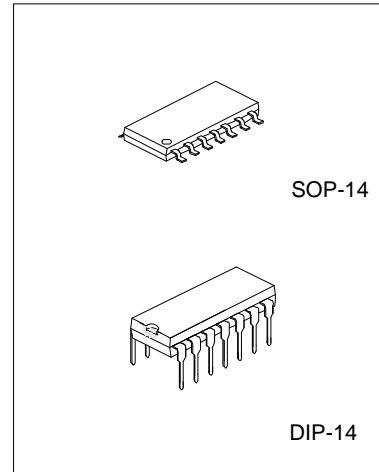
DUAL TIMER

DESCRIPTION

The UTC LM556 dual monolithic circuit is a highly stable controller capable of producing accurate delays or oscillation. The UTC LM556 is the dual of UTC NE555; timing is provided an external resistor and capacitor for each function. The two timers operate independently of each other, sharing only Vcc and GND. The circuits may be triggered and reset on falling wave forms. The output structures may sink or source 200mA.
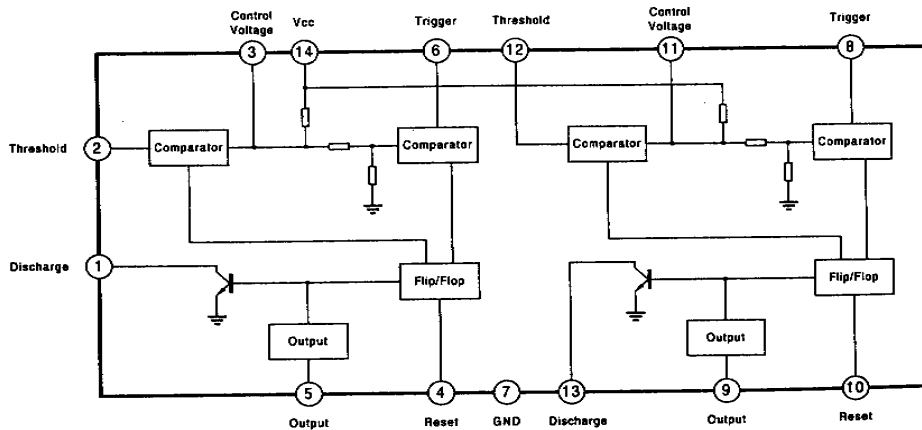
FEATURES

*High current driver capability(=200mA)
*Adjustable duty cycle
*Timing from µSec to Hours
*Temperature stability of 0.005%/°C
*TTL compatible
*Operates in both Astable and Monostable modes

APPLICATIONS

*Precision timing.
*Pulse generator, shaping.
*Time delay generator.
*Sequential timing.

*Pulse width modulation.
*Traffic light control.
*Touch tone encoder.
*Tone burst generator.

BLOCK DIAGRAM

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UTC LM556　　　LINEAR INTEGRATED CIRCUIT

ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	16	V
Power Dissipation	Pd	600	mW
Lead Temperature(soldering 10 sec.)	Tlead	300	°C
Operating Temperature	Topr	-40~85	°C
Storage Temperature	Tstg	-65~150	°C

ELECTRICAL CHARACTERISTICS

(Ta=25°C ,Vcc=5 to 15V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply voltage	Vcc		4.5		16	V
Supply Current(two timers)	Icc	Vcc=5V,RL=∞		5	12	mA
(low state), (Note 1)		Vcc=15V,RL=∞		16	30	mA
Timing Error(monostable)						
Initial Accuracy(Note 2)	A_{CCUR}	R_A=2KΩ to 100KΩ C=0.1μF T=1.1RC		0.75		%
Drift with Temperature	$\Delta t/\Delta T$			50		ppm/°C
Drift with Supply Voltage	$\Delta t/\Delta Vcc$			0.1		%/V
Timing Error(astable)						
Initial Accuracy(Note 2)	A_{CCUR}	R_A=1KΩ to 100KΩ C=0.1μF Vcc=15V		2.25		%
Drift with Temperature	$\Delta t/\Delta T$			150		ppm/°C
Drift with Supply Voltage	$\Delta t/\Delta Vcc$			0.3		%/V
Control Voltage	Vc	Vcc=15V	9.0	10.0	11.0	V
		Vcc=5V	2.6	3.33	4.0	V
Threshold Voltage	V_{TH}	Vcc=15V	8.8	10.0	11.2	V
		Vcc=5V	2.4	3.33	4.2	V
Threshold Current(Note 3)	I_{TH}			30	250	nA
Trigger Voltage	Vtr	Vcc=5V	1.1	1.6	2.2	V
		Vcc=15V	4.5	5	5.6	V
Trigger Current	Itr	Vtr=0		0.01	2.0	μA
Reset Voltage(Note 4)	Vrst		0.4	0.6	1.0	V
Reset Current	Irst			0.03	0.6	mA
Low Output Voltage	V_{OL}	Vcc=15V Isink=10mA		0.1	0.25	V
		Isink=50mA		0.4	0.75	V
		Isink=100mA		2	3.2	V
		Isink=200mA		2.5		V
		Vcc=5V Isink=5mA		0.15	0.25	V
		Isink=8mA		0.25	0.35	V

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PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High Output Voltage	VOH	Vcc=15V Isource=200mA Isource=100mA				
				12.5		V
			12.75	13.3		V
		Vcc=5V Isource=100mA				
			2.75	3.3		V
Rise Time of Output	tR			100	300	nSec
Fall Time of Output	tF			100	300	nSec
Discharge Leakage Current	ILKG			20	100	nA
Matching Parameter						
Initial Accuracy(Note 5)	ACCUR	RA, RB=1KΩ to 100KΩ C=0.1μF Vcc=15V		1	2	%
Drift with Temperature	Δt/ΔT			10		ppm/°C
Drift with Supply Voltage	Δt/ΔVcc			0.2	0.5	%/V

Note 1: Supply current when output is high is typically 1mA less at Vcc 5V.
Note 2: Tested at Vcc=5V and Vcc=15V.
Note 3: This will determine the maximum value of RA+RB for 15V operation, The maximum total is R=20MΩ, and for 5V operation the maximum total is R=6.6MΩ.
Note 4: As reset voltage lower, timing is inhibited and then the output goes low.
Note 5: Matching parameters refer to the difference between performance parameters of each timer section in the monostable mode.

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